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Attendance Management System Using RFID Based On ARM11(RASPBERRY PI)

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Abstract: **The work aims in designing a totally automated attendance monitoring system for colleges. Security may be the bigger concern for a person or perhaps a firm. The machine works well for monitoring a student presence at school together with automated attendance monitoring. An embedded product is a mix of hardware and software to carry out a dedicated task. A few of the primary devices utilized in embedded goods are Microprocessors and Microprocessors. The "Automated Student Attendance Monitoring System According to RFID" using ARM11 processor is definitely an exclusive project which is often used to create a burglar tracking system using wireless sensor systems. The unit also includes LCD which displays the data about attendance. An embedded product is a pc system made to perform one or perhaps a couple of dedicated functions frequently with real-time computing constraints.**

Keywords: **RFID; ARM Processor; Attendance System;**

I. INTRODUCTION

Automation is easily the most frequently typed term in the area of electronics. The desire automation introduced many revolutions within the existing technologies. One amongst the technologies which in fact had greater developments is RF communications. Caused by this are actually the RFID cards which transmit a distinctive identification number. The dpi transmitted through the RFID could be read with the aid of a RFID readers. The authentication towards the house/industry/ classroom could be provided entirely or limited with respect to the RFID cards. The choices like full access or limited access are taken by an onboard computer that the RF readers are interfaced. This onboard computer includes quantity of input and output ports. The onboard computer is generally referred to as micro processor. The input and output port from the processor are interfaced with various input and output modules with respect to the needs. Quite simply micro processor functions like a communication medium for the modules active in the project. The unit also includes LCD which displays the data about attendance. An embedded product is a pc system made to perform one or perhaps a couple of dedicated functions frequently with real-time computing constraints. It's embedded included in an entire device frequently including hardware and mechanical parts. By comparison, an over-all-purpose computer, like a pc (PC), is made to be flexible and also to meet an array of finish-user needs [1]. Embedded systems control many devices in keeping use today. Embedded systems are controlled by a number of primary processing cores which are typically either microprocessors or digital signal processors (DSP). The important thing characteristic, however, has been focused on handle a specific task, which might require very effective processors. For instance, air traffic control systems may usefully be observed as embedded, while they involve mainframe computers and dedicated regional and national systems between airports and radar sites. Generally, "embedded system" isn't a strictly definable term, since many systems possess some component of extensibility or programmability. For instance, handheld computers share some elements with embedded systems like the ox's and microprocessors which power them, however they allow different applications to become loaded and peripherals to become connected. Furthermore, even systems that don't expose programmability like a primary feature generally have to support software updates. Software Architecture: There are many various kinds of software architecture in keeping use. Simple Control Loop: Within this design, the program simply includes a loop. The loop calls subroutines, because both versions manage an element of the software or hardware.

II. HARDWARE DESCRIPTION

Within this chapter the block diagram from the project and style facet of independent modules are thought. The primary blocks of the project are: Micro processor, Controlled power (RPS), RFID module, LCD. ARM Processor: Variations between micro-processor and microcontroller: Micro-processor: The c.p.u, recollections, timers, Input/output ports, serial communication, interrupts etc.., these types of found on different chips and therefore are externally attached to the processing unit. Different chips occupy extra space more power consumption is needed and much more cost.

Microprocessors are utilized in items like general purpose computers. Different types of computer programs could be loaded and could be used concurrently. Multitasking can be achieved using micro-processor. The memory size, quantity of ports etc.., could be configured based on the requirement within our application. A sizable instruction set can be used as the applications using micro-processor. The time minute rates are faster in comparison with micro controller. They're in gega hertz for micro-processor. Microcontroller: 1. the CPU, serial communication, timers, Recollections, interrupts, input/output ports etc.., are outfitted on a single nick. 2. It occupies less space; therefore it consumes less power, as well as the cost extremely low in comparison with micro-processor. 3. Employed for items that performs merely a specified task. 4. Merely a single software program is usually used. 5. Using microcontroller merely a specified task can be achieved basing on specified periods of time. 6. The memory size, quantity of ports etc.., are extremely limited. 7. A concise instruction or perhaps a reduced instruction set is usually employed for the applications whenever we use microcontroller. 8. The time minute rates are slower in comparison with micro-processor. They're in mega hertz. ARM ARCHITECTURE: ARM architecture is dependent on Enhanced RISC architecture (deviates from classic RISC architecture). Embedded applications must have: High code density Low power consumption rate Small plastic feet print a sizable uniform register file (bank). Load-Store architecture, where information systems operations involve only registers although not memory locations. Uniform and glued length instructions. Good speed/power consumption ratio. High code density. JTAG debug support (for halting, walking, breakpoints, watching points) was simplified. The Embedded ICE module was substituted for an interface which grew to become area of the ARMv7 architecture. The hardware tracing modules (ETM and ETB) are compatible, but updated, versions of individuals utilized in the ARM9. Particularly, trace semantics were updated to deal with parallel instruction execution and knowledge transfers. ARM bakes an effort to advertise good Virology coding styles and methods. This ensures semantically rigorous designs, preserving identical semantics through the nick design flow, which incorporated extensive utilization of formal verification techniques. Without such attention, integrating an ARM11 with 3rd party designs could risk exposing hard-to-find latent bugs. Because of ARM cores being built-into a variety of designs, using a number of logic synthesis tools and nick manufacturing processes, the outcome of their register-transfer level (RTL) quality is magnified many occasions.[3] The ARM11 generation focused more about synthesis than previous generations, making such concerns become more of the issue. Raspberry Pi: The Raspberry Pi is really a credit-card-sized single-board computer coded in the United Kingdom through the Raspberry Pi Foundation using the aim of promoting the teaching of fundamental information technology in schools. The Raspberry Pi is produced through licensed manufacturing handles Newark element14 (Premier Farrell), RS Components and Ego man. Many of these companies sell the Raspberry Pi online. Ego man creates a version for distribution exclusively in China and Taiwan, which may be distinguished using their company Pis by their red coloring and insufficient FCC/CE marks. The hardware is identical across all manufacturers. Numerous Raspberry Pi specific add-ons and cases can be found from third-party suppliers. Included in this are the Raspberry Pi Foundation sanctioned Garboard, which is made for educational purposes, and expands the Raspberry Pi's GPIO pins to permit interface with and charge of LEDs, switches, analog signals, sensors along with other devices. Additionally, it includes an optional Arduino compatible controller to interface using the Pi. Controlled Power: Power is really a way to obtain electrical energy. A tool or system that supplies electrical or other kinds of energy for an output load or number of loads is known as an energy supply unit or PSU. The word is most generally put on electrical power supplies, less frequently to mechanical ones, and barely to other people. An energy supply can include an electrical distribution system in addition to primary or secondary causes of energy for example Conversion of 1 type of electrical energy to a different preferred form and current, typically involving converting AC line current to some well-controlled lower-current Electricity for electronics. Low current, low power Electricity power units are generally integrated using the devices they provide, for example computers and household electronics. Brought: An easy-emitting diode (Brought) is really a semiconductor source of light. LEDs are utilized as indicator lamps in lots of devices, and therefore are more and more employed for lighting. Introduced like a practical electronic component in 1962, early LEDs released low-intensity sore point, but modern versions can be found over the visible, ultraviolet and infrared wavelengths, with high brightness. RFID MODULE: utilizes a semiconductor (micro-nick) inside a tag or label to deliver stored data once the tag or label is uncovered to radio waves from the correct frequency. The Weather of the RFID System: The RFID tags. The RFID readers [2]. The antennas and selection of radio characteristics, the pc network (or no) which is used for connecting your readers. LCD: Probably the most common devices mounted on a micro controller are definitely an Liquid crystal display. Probably the most common

LCD's attached to the many microprocessors are 16x2 and 20x2 displays. What this means is 16 figures per line by 2 lines and 20 figures per line by 2 lines, correspondingly.

III. SOFTWARE DESCRIPTION

This project is implemented using following software's and Linux Operating-system: Express PCB - for designing circuit and Linux OS. Express PCB: Breadboards are ideal for prototyping equipment because it enables great versatility to change a design if needed nevertheless the final product of the project, ideally must have a neat PCB, couple of cables, and survive a shake test. Not just is really a proper PCB neater but it's also stronger because there are no cables which could yank loose. Express PCB is really a software program to create PCBs particularly for manufacture by the organization Express PCB (not one other PCB maker accepts Express PCB files). Express PCB has been utilized to create many PCBs (some layered with surface-mount parts. Print PCB patterns and employ the toner transfer method by having an Etch Resistant Pen to create boards [3]. However, Express PCB doesn't have a pleasant print layout. This is actually the procedure to create in Express PCB and cleanup the patterns so that they print nicely. Design Factors: Before beginning a task there are many methods to design a PCB and something should be selected to match the project's needs. LINUX operating-system: An operating-system (OS) is definitely an intermediary between users and computing devices. It offers users an atmosphere where a user can execute programs easily and efficiently. In terminology, it's a software which manages hardware. An operating-system controls the allocation of sources and services for example memory, processors, devices and knowledge.

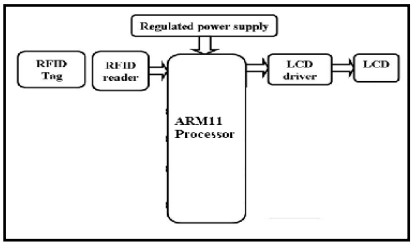

Fig.1. Proposed System

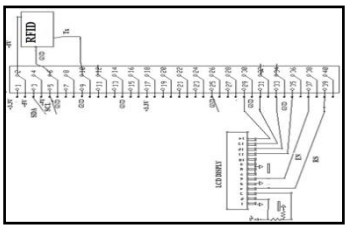

Fig.2. Attendance System

IV. RESULTS

The project "Automated Student Attendance Monitoring System based on RFID" was designed by which student attendance is monitored. It is used for ensuring the parents/guardian about student's college specific information by which the security concern on a particular student can be monitored and controlled.

V. CONCLUSION

Integrating features of all of the hardware components used happen to be coded in it. Existence of every module continues to be reasoned out and placed carefully, thus adding towards the best working from the unit. Next, using highly advanced IC's with the aid of growing technology, the work continues to be effectively implemented. Thus the work continues to be effectively designed and tested. Our project "Automated Student Attendance Monitoring Control System according to RFID" is principally meant to design a totally robotic voice through which student attendance is monitored. It's employed for making certain the mother and fatherOrprotector about student's college specific information through which the safety concern on the particular student could be monitored and controlled. The machine includes RFID readers, LCD that is interfaced towards the Micro Processor. The RFID tag is detected once the individual is identified before entering the region. Lastly for security purpose, after crossing a specific distance with a student, then just the next tag is going to be recognized through the readers along with a keypad is supplied for password entry. The work could be extended using GPRS technology through which we are able to upload the data inside a predefined website that the information could be monitored between the planets. By utilizing exterior memory and the amount of RFID Tags, we are able to make use of this system for additional quantity of students.

VI. REFERENCES

[1] Raj kamal –Microprocessors Architecture, Programming, Interfacing and System Design.

[2] Mazidi and Mazidi –Embedded Systems.

[3] Embedded C –Michael.J.Pont.

